

WHAT IS CLAIMED IS:

1. A method of manufacturing a semiconductor pressure sensor on a monocrystal silicon substrate in which the face direction of one face corresponds to the (110) -face,

disposing an etching mask at the one face side of the monocrystal silicon substrate, wherein the etching mask has a cross-shaped opening portion at which a first area extending along the  $\langle 110 \rangle$  crystal axis direction and a second area extending along the  $\langle 100 \rangle$  crystal axis direction cross each other, and an area of an opening portion in an overlap area between the first area and the second area in the opening portion is set to be smaller than an area of a diaphragm to be formed in the substrate; and

forming a recess portion on the monocrystal silicon substrate by conducting anisotropic etching from the one face of the monocrystal silicon substrate and also forming a pressure-receiving diaphragm at the bottom surface side of the recess portion in the monocrystal silicon substrate.

2. The semiconductor pressure sensor manufacturing method according to claim 1, wherein the opening portion of the overlap area between the first area and the second area in the opening portion of the etching mask is designed in an octagonal shape.

3. A method for manufacturing a semiconductor pressure sensor on a monocrystal semiconductor substrate, the method comprising:

disposing an etching mask on a face side of the monocrystal semiconductor substrate corresponding to the (110)-face, wherein the etching mask comprises an opening portion comprised of a first area extending along the  $\langle 110 \rangle$  crystal axis, a second area extending along the  $\langle 100 \rangle$  crystal axis and an overlap portion between the first and second areas inclined to the  $\langle 110 \rangle$  crystal axis and the  $\langle 100 \rangle$  axis; and

forming a recess portion on the monocrystal silicon substrate by conducting anisotropic etching from the one face side of the monocrystal silicon substrate and also forming a pressure-receiving diaphragm at a bottom surface side of the recess portion in the monocrystal silicon substrate.